

9th, 10th, 11th, & 12th GRADE **DUAL-USE DESIGN CHALLENGE**

GROWING THE FUTURE: FARMING WITH SOLAR

The Challenge

As agricultural professionals and our ancestors knew, land is a farmer's most valuable resource. Across the country, solar farms are being built on farmland, raising concerns about the loss of productive land for crops and livestock. But what if solar panels and farming could work together?

Dual-use solar farms—also called **agrivoltaics**—allow land to be used for both **energy production and agriculture**.

Your challenge is to **evaluate an existing dual-use solar farm design or propose a new one** that balances **energy production and farm viability**. Your solution must consider the **real-world trade-offs** farmers face, including cost, productivity, land use, and community acceptance.

Grounding Phenomenon

Farmers and ranchers across the U.S. are experimenting with **dual-use solar** to keep their operations profitable while adapting to changing economic and environmental conditions. Some use solar arrays for **shade-tolerant crops**, while others **graze livestock beneath panels** to improve pasture health. Some solar farms even provide **pollinator habitat or soil restoration** as part of conservation efforts.

But every solution comes with challenges:

- ☀️ How do you balance **crop yields or livestock health** with energy production?
- ☀️ Can dual-use solar provide **long-term financial stability** for farmers?
- ☀️ How can **rural communities** support these projects?

Essential Questions

- ☀️ How can solar technology be integrated into an active farming operation **without reducing productivity**?
- ☀️ What are the biggest challenges **farmers and ranchers** face when adopting dual-use solar?
- ☀️ How do factors like **cost, market demand, and land management practices** influence a farm's decision to install solar?
- ☀️ What are the **economic, social, and environmental trade-offs** of dual-use solar farming?

Your Task

- ☀️ **Select or propose a dual-use solar farm design** suited for an agricultural operation.
- ☀️ **Identify key factors for success**, such as soil health, livestock well-being, crop growth, and farm income.
- ☀️ **Analyze trade-offs**—what are the benefits and challenges for a working farm?
- ☀️ **Consider practical constraints**, including **cost, safety, reliability, and aesthetics**.
- ☀️ **Evaluate the potential impact on rural communities and agricultural sustainability**.



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Helpful Tips

- ☀ Research how real farmers are using dual-use solar to **increase profits and farm resilience**.
- ☀ Consider input from **farmers, agronomists, rural communities, solar professionals, academics and policymakers**.
- ☀ Look at how factors like **farm size, crop selection, and weather patterns** influence design choices.
- ☀ Justify your design decisions using **real-world agricultural knowledge and business sense**.

This challenge is open to all types of students—whether in classrooms, STEM clubs, FFA chapters, homeschool programs, or independent projects. With grade-specific categories and tailored guidance, students of all ages can participate at a level that fits their abilities as an individual or on a team.

**Your insights can help shape the future of farming.
Are you ready to take on the challenge?**

Submit your project at <https://solarfarmsummit.com/student-design-challenge>



Competing entries due April 30, 2026



A Collaboration Between



The [Solar Farm Summit](#) is America's agrivoltaics conference and farming + solar exhibition, bringing together experts, farmers, researchers, and innovators to explore the future of agriculture and energy. Finalists in the Dual-Use Design Challenge will have the opportunity to showcase their projects at the 2026 Solar Farming Student Fair Showcase, win cash prizes, and receive public recognition as well as direct introduction to industry leaders and professionals on the cutting edge of agrivoltaics during the industry's most collaborative and constructive event.



The [InSPIRE](#) project (**I**nnovative **S**olar **P**ractices Integrated with **R**ural **E**conomies and **E**cosystems) is the nation's longest running and largest agrivoltaics research initiative. InSPIRE explores how solar energy can be co-developed with agriculture and native landscapes, conducting field research, providing data-driven insights, and convening experts across disciplines. By advancing our understanding of agrivoltaics and other dual-use solutions, InSPIRE supports the scaling of solar projects that benefit both landowners and ecosystems.

*If you would like to join us at the 2026 Solar Farming Student Fair Showcase,
please reach out to admin@solarfarmsummit.com.*